



07434342



# EXAMINATIONS COUNCIL OF ZAMBIA



## Examination for School Certificate Ordinary Level

5090/1

### Biology

#### Paper 1 Multiple Choice

**Tuesday**

**8 NOVEMBER 2022**

#### Additional Materials:

- Multiple Choice Answer Sheet
- Soft clean eraser
- Soft pencil (type B or HB is recommended)

**Time: 50 minutes**

**Marks: 40**

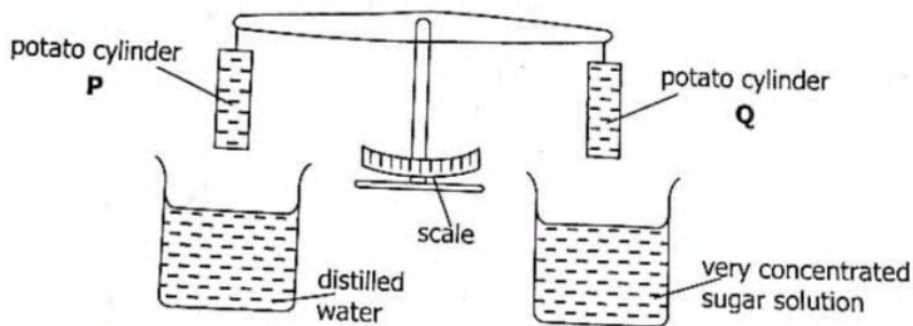
#### Instructions to Candidates

1. Ensure that the **school/centre name and subject paper, subject code, paper number, centre code, your examination number and the year** are correctly printed and shaded on the Answer Sheet.
2. There are **forty** questions in this paper. Answer **all** questions.
3. For each question there are four possible answers: **A, B, C and D**. Choose the **one** you consider correct and shade your choice using a **soft pencil** on the separate Answer Sheet.
4. **Read very carefully the instructions on the Answer Sheet.**

#### Information for Candidates

1. Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
2. Any rough working should be done in this Question Paper.
3. Cell phones and other electronic devices are **not allowed** in the examination room.

- 1 A learner was walking along a road when he saw an object under a tree. When the learner touched the object, it changed colour, rolled over and divided into two. Which characteristic of living organisms has the object shown?
  - A Excretion, movement, nutrition
  - B Growth, reproduction, sensitivity
  - C Movement, reproduction, respiration
  - D Movement, reproduction, sensitivity
  
- 2 Which of the following correctly shows the path followed by a light beam from a mirror to a viewer of a specimen under a microscope?
  - A Eye piece → Specimen → Objective lens → Barrel
  - B Specimen → Barrel → Objective lens → Eye piece
  - C Specimen → Eye piece → Barrel → Objective lens
  - D Specimen → Objective lens → Barrel → Eye piece
  
- 3 A learner investigated osmosis in potato tissues. He set up the apparatus as shown.



www.eczpastpapers.com

- At the beginning, the potato cylinders were exactly balanced. He immersed the cylinders into the liquids for 4 hours, after which the cylinders were lifted out of the liquids. Cylinder P was now heavier than cylinder Q. Which statement explains what happened? Water moved ...
- A into cylinder P.
  - B into cylinders P and Q.
  - C into cylinder Q.
  - D out of cylinders P and Q.
- 
- 4 Two samples of a human enzyme were used in an experiment. Before they were used, sample X was heated to 80°C and cooled to 37°C and sample Y was cooled to 0°C and then heated to 37°C. How did this affect the enzyme activity?
    - A Sample X and sample Y were no longer active.
    - B Sample X and sample Y were equally active.
    - C Sample X was more active than sample Y.
    - D Sample Y was active while sample X was inactive.

- 5 The following table shows the percentage of carbohydrates, fats and proteins in four samples of food. Which food sample contains the most energy?

	Carbohydrate %	Fat %	Protein %
A	59	33	04
B	54	36	08
C	36	26	19
D	30	22	18

- 6 The following symptoms can be caused by a dietary deficiency.
- Bone pain
  - Dental problems
  - Fragile bones
  - Skeletal deformities

Which nutrient deficiency is most likely to cause these symptoms?

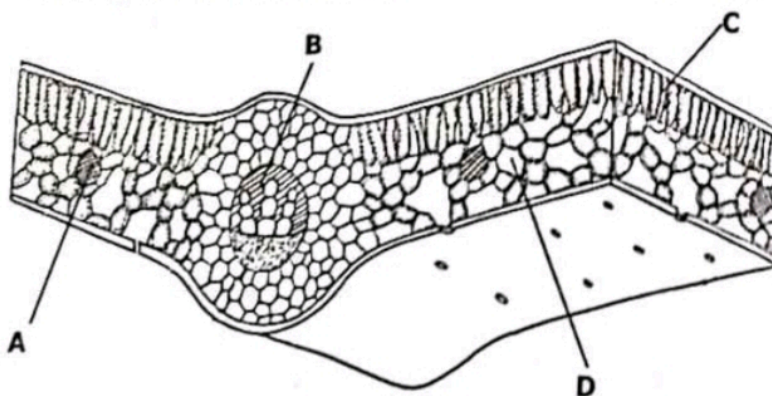
- A Iron  
 B Protein  
 C Vitamin C  
 D Vitamin D
- 7 Which of the following groups of people need more carbohydrates in their diet?
- A Aged and youth  
 B Lactating woman and sick person  
 C Pregnant woman and sportsman  
 D Sick person and pre-school age

- 8 A plant had the following signs:

- poor root growth
- small reproductive organs

Which nutrient was the plant lacking?

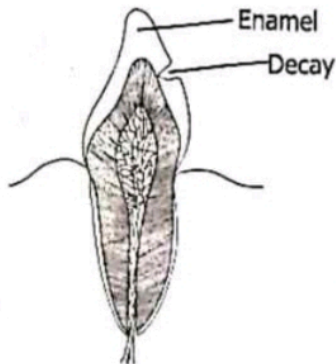
- A Boron  
 B Copper  
 C Magnesium  
 D Phosphorus
- 9 The diagram shows the internal structure of a dicotyledonous leaf.



Which part transports mineral salts and water?

- 10 Which of the following best describes saprophytic nutrition?
- A Feeding on dead or decaying matter.
  - B Feeding on living organisms.
  - C Involves intracellular digestion.
  - D Manufacturing of food nutrients.

- 11 The diagram shows a tooth with signs of decay.



What has caused the tooth to decay?

- A Acid
- B Saliva
- C Sugar
- D Toothpaste

- 12 The table shows some of the changes that occur during breathing.

	From contracted to relaxed	From relaxed to contracted
Diaphragm	P	X
External intercostal muscles	Q	Y
Internal intercostal muscles	R	Z

Which changes occur to cause inspiration?

- A P, Q and Z
- B X, Q and R
- C X, Y and R
- D X, Y and Z

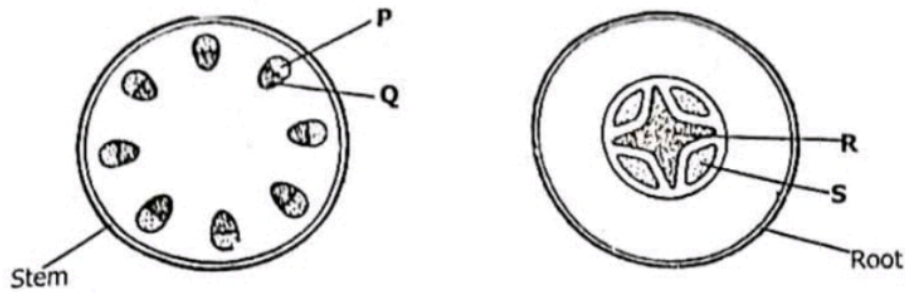
- 13 Which products of anaerobic respiration are important for making beer and bread?

	Beer	Bread
A	Carbon dioxide	Simple sugar
B	Ethanol	Carbon dioxide
C	Lactic acid	Ethanol
D	Simple sugar	Lactic acid

- 14 In order to reduce the effects of COVID-19, people are advised to get vaccinated. What type of immunity results from these vaccinations?

- A Artificial active immunity
- B Artificial passive immunity
- C Natural active immunity
- D Natural passive immunity

15 The diagram shows a cross section of a dicot plant stem and a dicot plant root.



Which labelled regions contain xylem vessels?

- A P and R
- B P and S
- C Q and R
- D Q and S

16 The following is a random list of processes necessary for a wound to heal.

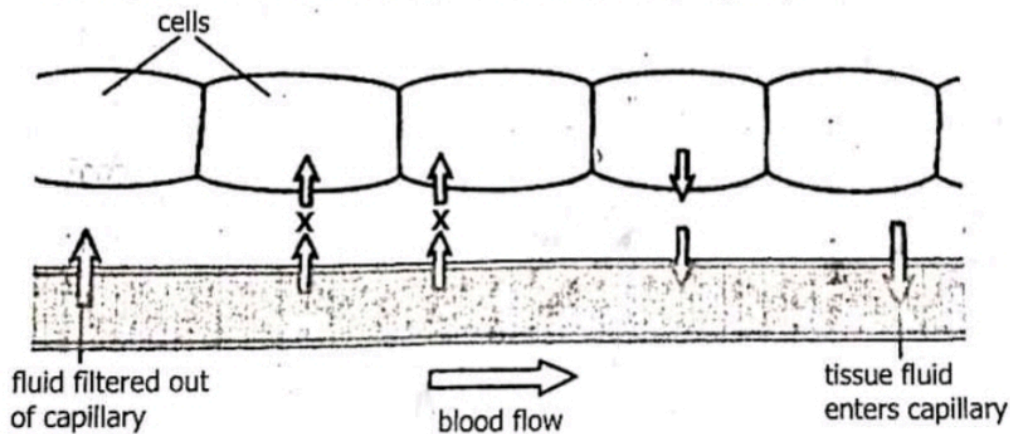
1. The blood clot forms a seal
2. Fibrin traps red blood cells
3. Fibrinogen is converted to fibrin
4. New tissues form

In which correct order do these processes take place for the wound to heal?

	First	→ Last		
A	1	2	4	3
B	2	4	3	1
C	3	2	1	4
D	4	3	1	2

www.eczpastpapers.com

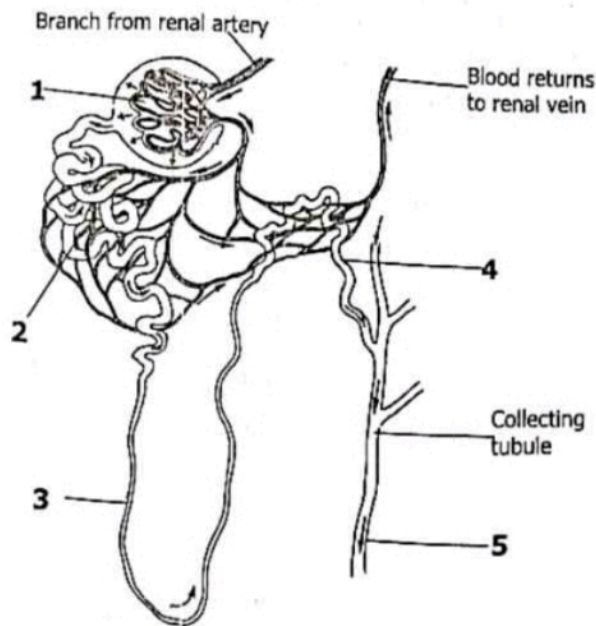
17 The diagram shows some body cells and a nearby capillary.



Which substances must pass in the direction of the arrow X for the cells to respire aerobically?

- A Carbon dioxide and water
- B Glucose and oxygen
- C Salts and glucose
- D Water and salts

18 The diagram shows a nephron.



Where do ultra-filtration and selective reabsorption occur?

	Ultra filtration	Selective reabsorption
A	1	2
B	1	3
C	2	3
D	4	5

19 What is true for a runner at the end of a race in hot weather?

- A Sweating and vasoconstriction
- B Sweating and vasodilation
- C Vasoconstriction only
- D Vasodilation only

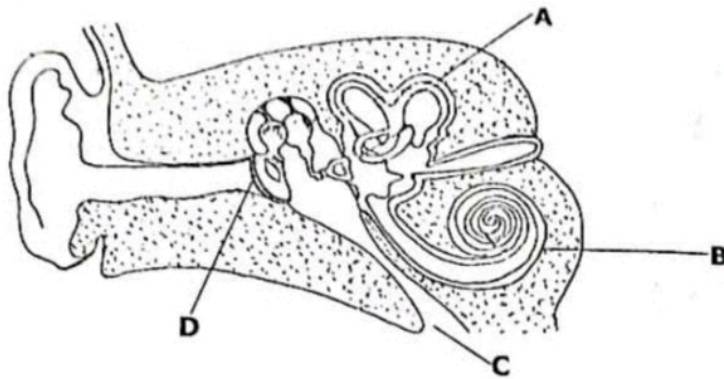
20 Which of the following hormones stimulates growth by stimulating synthesis of macromolecules such as carbohydrates, lipids and proteins?

- A Antidiuretic hormone
- B Growth hormone
- C Thyroid stimulating hormone
- D Thyroxine

21 Which of the following correctly shows examples and types of reflex actions?

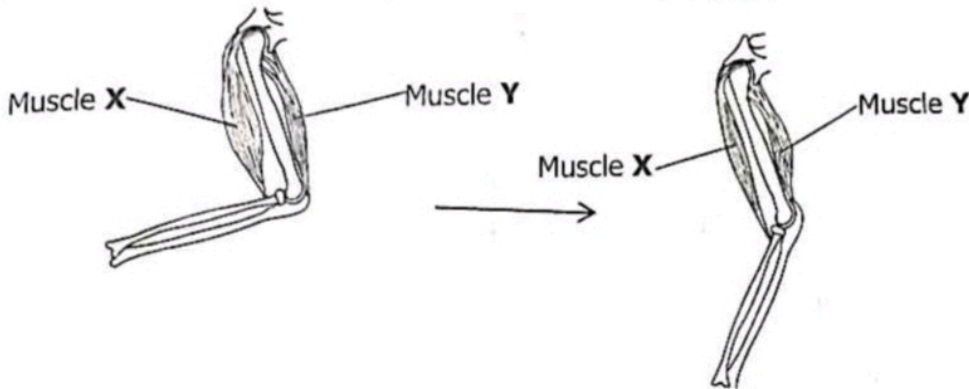
	Spinal reflex	Cranial reflex	Conditioned reflex
A	Blinking	Knee jerk	Salivating
B	Coughing	Blinking	Knee jerk
C	Knee jerk	Blinking	Salivating
D	Salivating	Coughing	Blinking

22 The diagram shows a human ear.



Which of the labelled parts is involved in balance?

23 The diagram shows the elbow joint in two different positions.



What happens to the muscles X and Y to change the position of the elbow joint as shown?

www.eczpastpapers.com

	Muscle X	Muscle Y
A	Contracts	Contracts
B	Contracts	Relaxes
C	Relaxes	Contracts
D	Relaxes	Relaxes

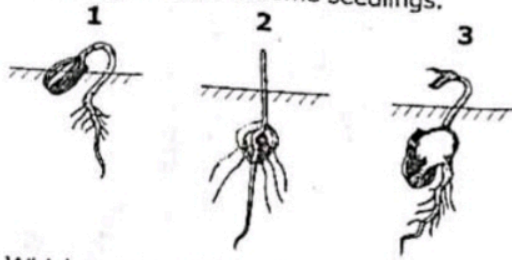
24 Which of the following correctly distinguishes a taxic response from a tropic response? A taxic response ...

- A involves hormones.
- B is a growth movement.
- C is a movement of whole organism.
- D is irreversible.

25 Which of the following is the correct order of processes that occur during growth?

- A Cell division, cell elongation, cell specialisation
- B Cell division, cell specialisation, cell elongation
- C Cell elongation, cell division, cell specialisation
- D Cell elongation, cell specialisation, cell division

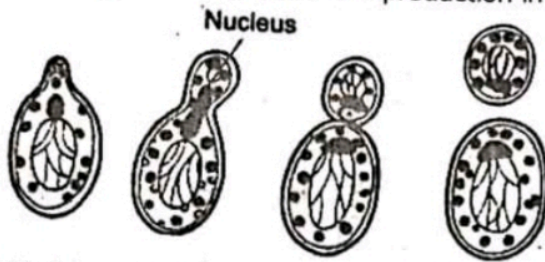
26 The diagram shows some seedlings.



Which seedling(s) show(s) epigeal germination?

- A 1 and 3
- B 1 only
- C 2 only
- D 2 and 3

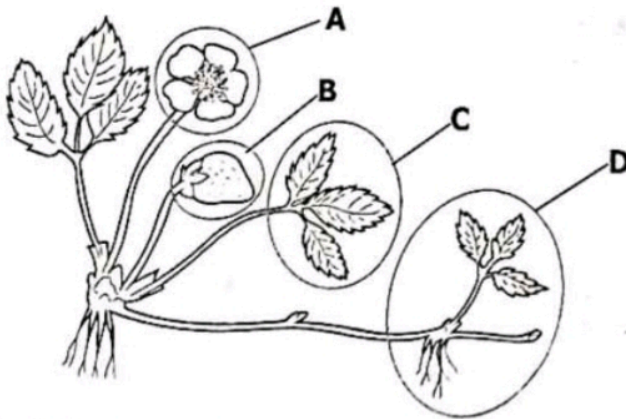
27 The diagram shows asexual reproduction in a unicellular organism.



What type of asexual reproduction is shown?

- A Binary fission
- B Budding
- C Fragmentation
- D Spore formation

28 The diagram shows a strawberry plant.



Which labelled part of the plant can only be produced by asexual reproduction?

29 Which processes occur in the carpel of a flower?

- A Attracting insects and pollination
- B Fertilisation and producing pollen
- C Pollination and fruit formation
- D Releasing pollen and fertilisation

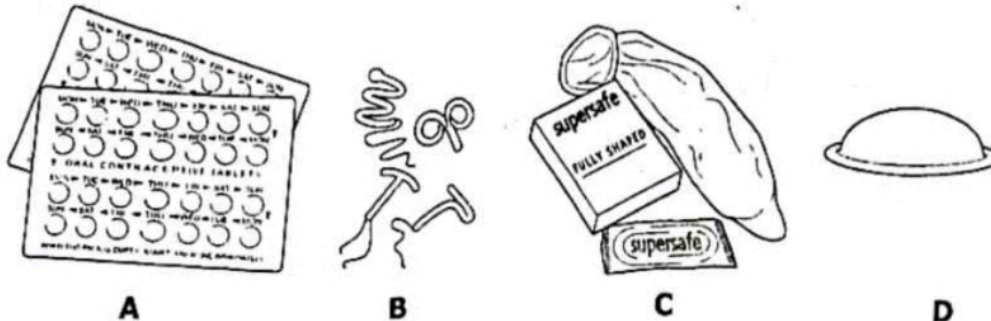
- 30 The following processes occur during reproduction in flowering plants.
1. Fertilisation
  2. Growth of pollen tubes
  3. Pollination
  4. Seed formation

In which order do these processes occur?

- A 1 → 4 → 2 → 3  
 B 2 → 1 → 3 → 4  
 C 3 → 2 → 1 → 4  
 D 4 → 3 → 1 → 2

- 31 A frog becomes an adult when ...
- A it has all four legs and its tail disappears.
  - B it has all four legs and a tail.
  - C it has hind legs.
  - D its tail gets smaller.

- 32 The diagrams show four methods of birth control.



Which one is placed in the uterus?

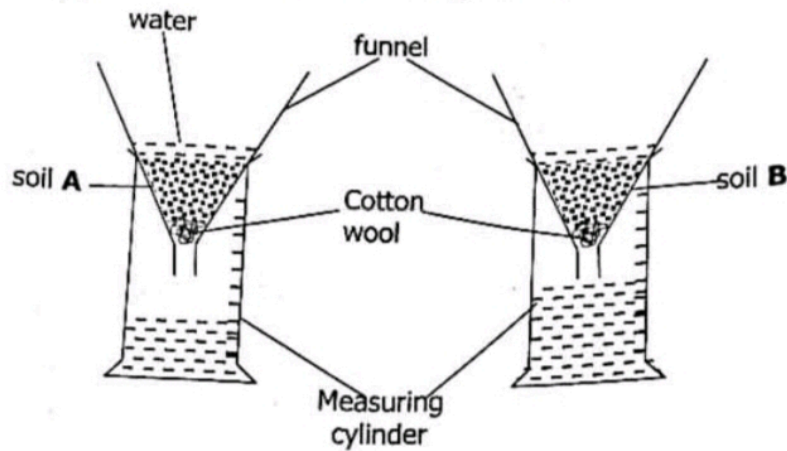
- 33 What makes tongue rolling an example of discontinuous variation?
- A A person can either roll a tongue or cannot.
  - B A person can roll a tongue only when he/she is young.
  - C There are many different types of tongue rollers.
  - D Tongue rolling has to be learnt.
- 34 The diagram shows one of the stages in mitosis.



Which of the following stages of mitosis is shown in the diagram?

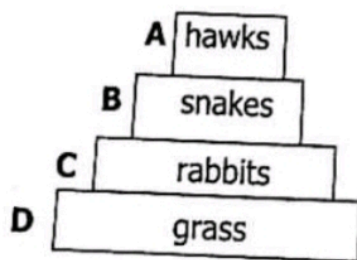
- A Anaphase
- B Metaphase
- C Prophase
- D Telophase

- 35 To which phylum do algae belong?  
 A Bryophyta  
 B Chlorophyta  
 C Pteridophyta  
 D Spermatophyta
- 36 The diagrams show an experiment set up to compare porosity of two types of soils.



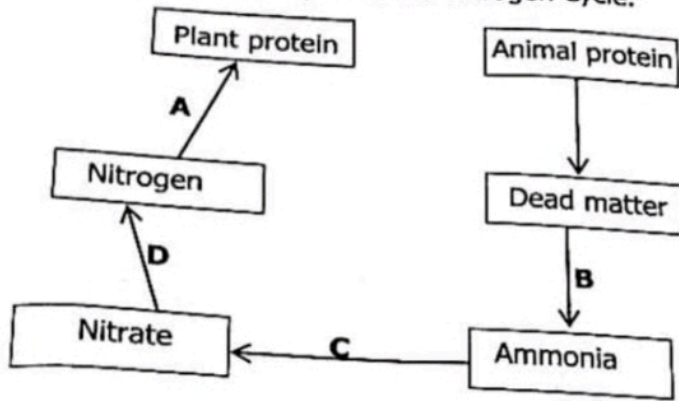
After 10 minutes the results showed that different volumes of water were collected in the two measuring cylinders. The conclusion was that ...

- A soil A had low porosity because it was clay soil.  
 B soil A had low porosity because it was sand soil.  
 C soil B had high porosity because it was clay soil.  
 D soil B had high porosity because it was sand soil.
- 37 Which of the following lists of components of the ecosystem forms the abiotic component?  
 A Air, fish, green plants  
 B Grass, water lily, water  
 C Water lily, soil, fish  
 D Water, sunlight, air
- 38 The diagram shows an ecological pyramid.



Which of the levels shows primary consumers?

- 39 The diagram shows part of the Nitrogen Cycle.



Which stage depends on nitrifying bacteria?

- 40 An adaptive feature of an organism is defined as one that helps the organism to ...
- A change.
  - B disperse to new habitats.
  - C grow.
  - D survive and reproduce.